

## CLAIMS

1. A method for communication between two or more customer local area network (LAN) segments through a provider network, with each customer LAN segment including a customer edge bridge, and where the provider  
5 network has one or more provider edge bridges coupled to the customer edge bridges, comprising the steps of:

in the provider edge bridges coupled to a customer LAN segment:

receiving topology change notifications (TCNs) from the customer network;

10 in response to receiving a TCN, monitoring end host addresses in data units received from the customer network for a predetermined time period;

flushing an address memory file associating end host addresses with ports of the provider edge bridge in response to detecting an end host address indicating that a topology change has occurred in one or more of the  
15 customer LAN segments affecting paths of data units through the provider network.

2. The method of claim 1 wherein said flushing step comprises the step of flushing the address memory file if the end host address of a data unit received in the predetermined time period is in conflict with information in the  
20 memory address file.

3. The method of claim 1 wherein said flushing step comprises the step of flushing the address memory file if a predetermined number of end host addresses of data units received in the predetermined time period is not found in the address memory file.

25 4. The method of claim 3 wherein said flushing step comprises the step of flushing the address memory file if the end host address of a data unit received in the predetermined time period is not found in the address memory

file and if the end host address is found an address memory file of another bridge in the provider network.

5        5.        The method of claim 4 and further comprising the step of storing a list of end host addresses that are received during the predetermined time period and are not found in the address memory file.

6.        The method of claim 1 wherein said end host address are media access control (MAC) addresses.

7.        The method of claim 1 wherein the data units are frames.

10       8.        A method for communication between two or more customer local area network (LAN) segments through a provider network, where each customer LAN segment including a customer edge bridge, and where the provider network has one or more provider edge bridges coupled to the customer edge bridges, comprising the steps of:

15       in each edge bridge of a LAN segment having a multi-homed connection to the provider network:

flagging topology change notifications (TCNs) which relate to topology changes affecting paths of data units through the provider network; and

20       in each of the provider edge bridges coupled to a customer LAN segment: receiving topology change notifications (TCNs) from the customer network;

in response to receiving a flagged TCN, flushing an address memory file associating end host addresses with ports of the provider edge bridge; and

25       in response to receiving an unflagged TCN, passing the TCN without flushing an address memory file.

9. The method of claim 18 wherein said flagging step comprises the step of flagging TCNs which relate to a blocked path coupled to the edge bridge.

10. The method of claim 9 wherein said flagging step comprises the step of flagging TCNs generated locally the edge bridge.

5 11. A provider edge bridge of a provider network for providing communication with one or more customer edge bridges of customer local area network (LAN) segments, comprising:

processing circuitry for:

10 receiving topology change notifications (TCNs) from the one or more customer bridges;  
in response to receiving a TCN, monitoring end host addresses in data units received from the one or more customer bridges for a predetermined time period;

15 flushing an address memory file associating end host addresses with ports of the provider edge bridge if a data unit received in the predetermined time period has a end host address indicating that a topology change has occurred in one or more of the customer LAN segments affecting paths of data units through the provider network.

12. The provider edge bridge of claim 11 wherein said processor  
20 flushes the address memory file by flushing the address memory file if the end host address of a data unit received in the predetermined time period is in conflict with information in the memory address file.

13. The provider edge bridge of claim 11 wherein said processor  
25 flushes the address memory file by flushing the address memory file if a predetermined number of end host addresses of data units received in the predetermined time period are not found in the address memory file.

14. The provider edge bridge of claim 13 wherein said processor flushes the address memory file by flushing the address memory file if the end host address of a data unit received in the predetermined time period is not found in the address memory file and if the end host address is found an address  
5 memory file of another bridge in the provider network.

15. The provider edge bridge of claim 14 and further including a memory for storing a list of end host addresses that are received during the predetermined time period and are not found in the address memory file.

16. The provider edge bridge of claim 11 wherein said end host  
10 address are media access control (MAC) addresses.

17. The provider edge bridge of claim 11 wherein the data units are frames.

18. A communication network including two or more customer local area network (LAN) segments coupled through a provider network, where each  
15 customer LAN segment includes a customer edge bridge, and where the provider network has one or more provider edge bridges coupled to the customer edge bridges, comprising:

in each edge bridge of a LAN segment having a multi-homed connection to the provider network, a customer edge bridge comprising a processor for  
20 flagging topology change notifications (TCNs) which relate to topology changes which affecting paths of data units through the provider network; and

in each of the provider edge bridges coupled to a customer LAN segment a processor for:

receiving topology change notifications (TCNs) from the customer  
25 network;

in response to receiving a flagged TCN, flushing an address memory file associating end host addresses with ports of the provider edge

bridge; and

in response to receiving an unflagged TCN, passing the TCN without generating an address memory file.

19. The communication network of claim 18 wherein said customer  
5 edge bridges of a LAN segment having a multi-homed connection flag TCNs which relate to a blocked path coupled to the edge bridge.

20. The communication network of claim 18 wherein said customer edge bridges of a LAN segment having a multi-homed connection flag TCNs generated locally the customer edge bridge.